Electronic TUBES

12CT8

TRIODE-PENTODE

DESCRIPTION AND RATING

The 12CT8 is a miniature triode-pentode designed for use in compact, 300-milliampere, series-string television receivers. The pentode section is designed primarily for use as a video amplifier. The triode section is suitable for service as a sync amplifier, separator, or clipper, or as a sweep oscillator.

The 12CT8 has a controlled heater warm-up characteristic as required for use in television receivers that employ series-connected heaters. It also features high performance capabilities at the low d-c supply voltages normally available in these applications.

The 12CT8 is similar to the 6AU8, from which it differs primarily in heater ratings, basing arrangement, length of envelope, and maximum ratings.

GENERAL

ELECTRICAL

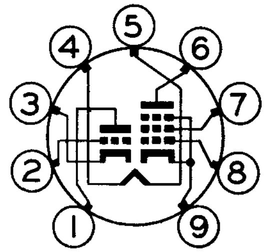
Cathode—Coated Unipotential

Heater Voltage, AC or DC	12.6	Volts
Heater Current	0.3±6%	Amperes
Heater Warm-up Time*	11	Seconds
Direct Interelectrode Capacitances†		
Pentode Section		
Grid-Number 1 to Plate	0.044	μμf
Input	7.5	μμf
Output	2.4	μμf
Triode Section		
Grid to Plate	2.2	μμf
Input	2.4	μμf
Output	0.19	μμf
Pentode Grid-Number 1 to Triode Plate, maximum	0.010	μμf
Triode Grid to Pentode Plate, maximum	0.016	μμf
Pentode Plate to Triode Plate, maximum	0.16	μμf

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

BASING DIAGRAM

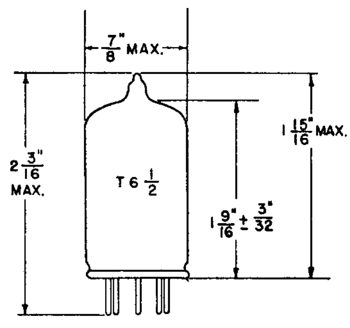


RETMA 9DA

TERMINAL CONNECTIONS

Pin 1—Triode Plate
Pin 2—Triode Grid
Pin 3—Triode Cathode
Pin 4—Heater
Pin 5—Heater
Pin 6—Pentode Plate
Pin 7—Pentode Grid Number 2 (Screen)
Pin 8—Pentode Grid Number 1
Pin 9—Pentode Cathode, Grid Number 3, and Internal Shield

PHYSICAL DIMENSIONS



RETMA 6–2

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES	Pentode Section	Triode Section	
Plate Voltage	300	300	Volts
Screen-Supply Voltage	300	....	Volts
Screen Voltage—See Screen Rating Chart			
Positive DC Grid-Number 1 Voltage	0	0	Volts
Plate Dissipation	2.75	2.5	Watts
Screen Dissipation	0.9	....	Watts
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	0.25	0.5	Megohms
With Cathode Bias	1.0	1.0	Megohms

Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur for the types of service for which the tube is rated. Therefore, the equipment designer must establish the circuit design so that initially and throughout equipment life no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.

CHARACTERISTICS AND TYPICAL OPERATION

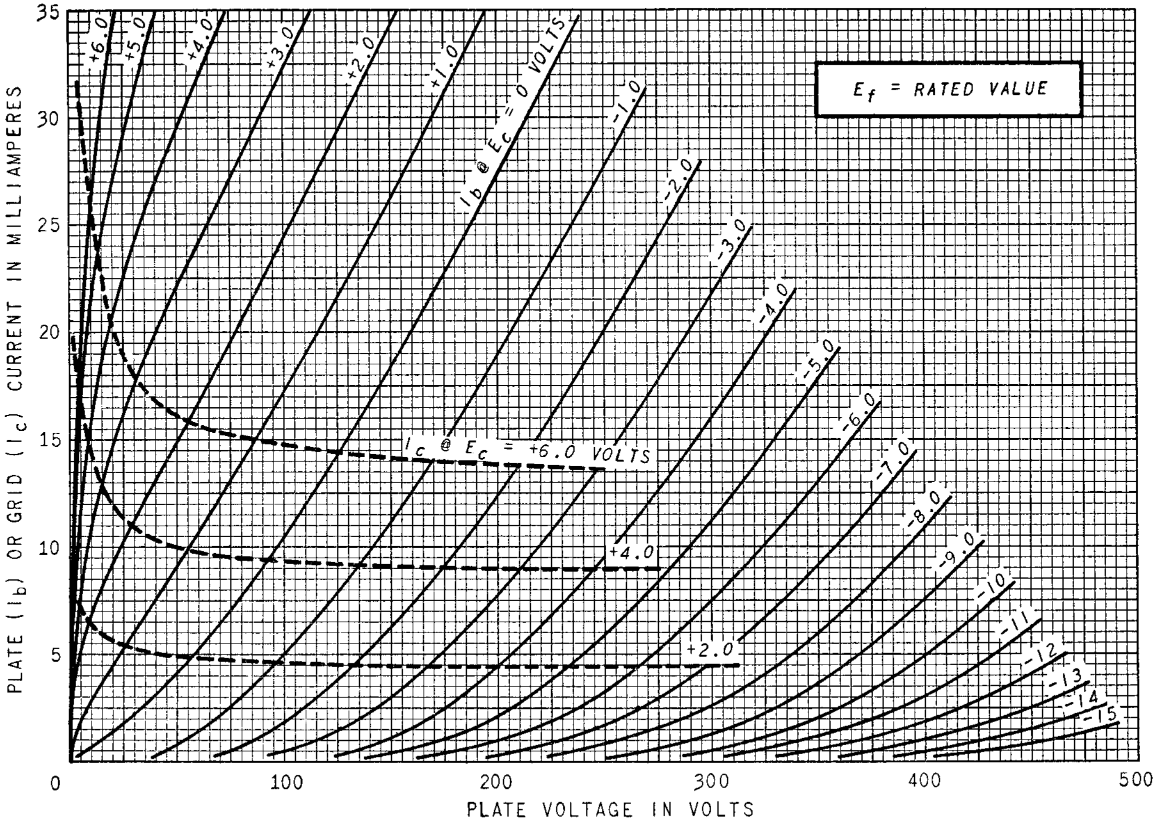
	Pentode Section	Triode Section	
Plate Voltage	200	150	Volts
Screen Voltage	125	....	Volts
Cathode-Bias Resistor	82	150	Ohms
Amplification Factor	....	40	
Plate Resistance, approximate	150000	8200	Ohms
Transconductance	7000	4900	Micromhos
Plate Current	15	9.0	Milliamperes
Screen Current	3.4	....	Milliamperes
Grid-Number 1 Voltage, approximate			
Ib = 100 Microamperes	−8	−6.5	Volts

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† Without external shield.

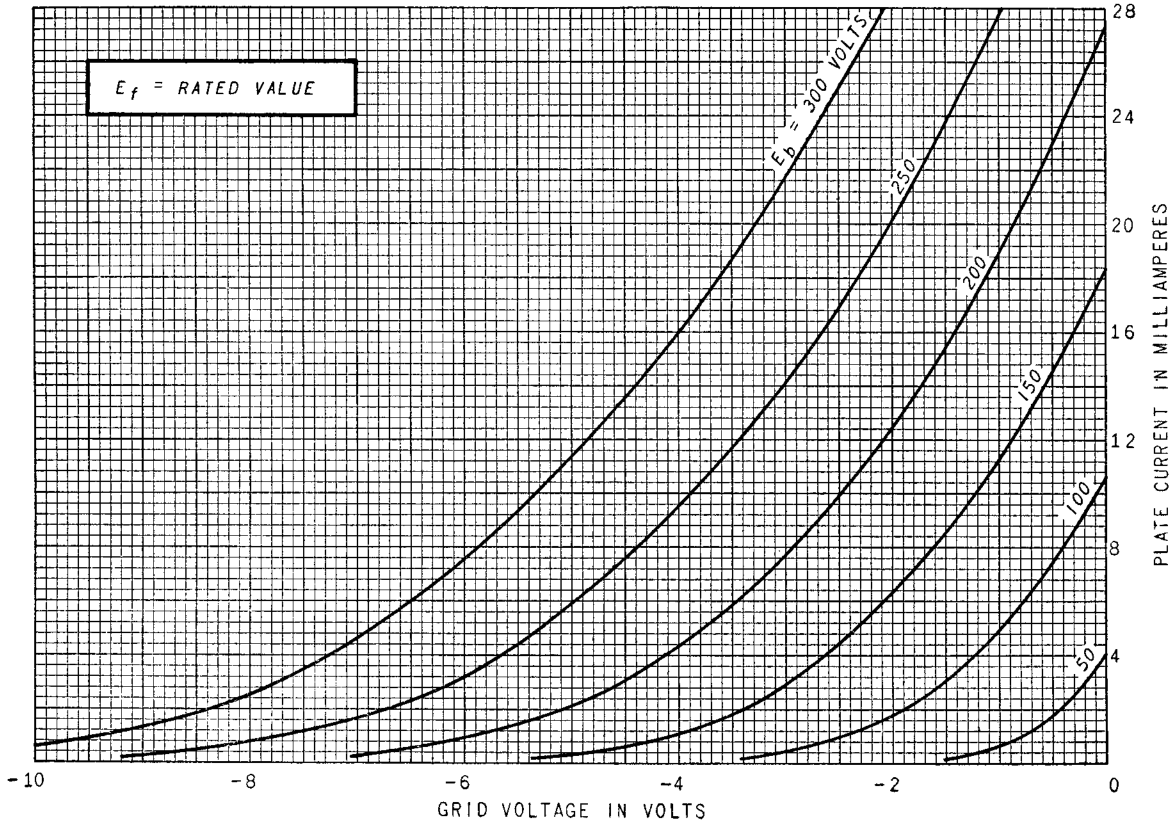
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

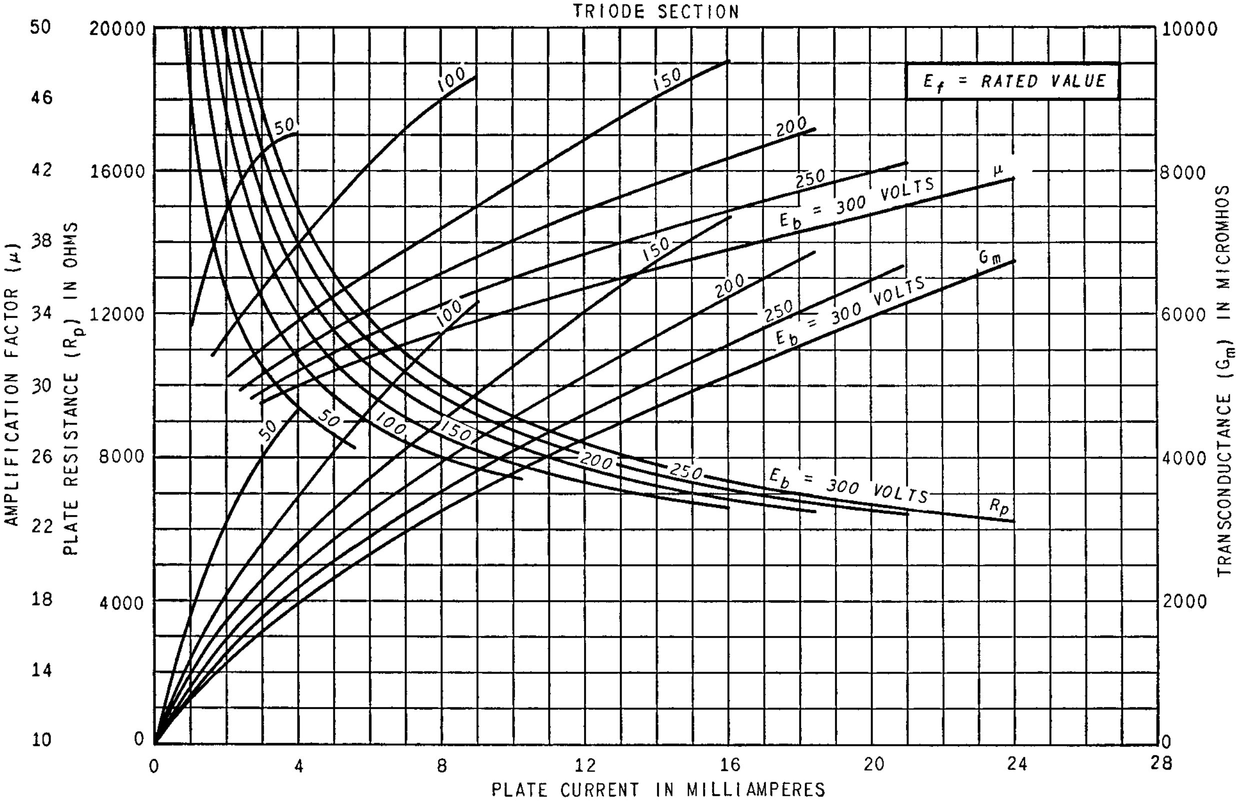


AVERAGE TRANSFER CHARACTERISTICS

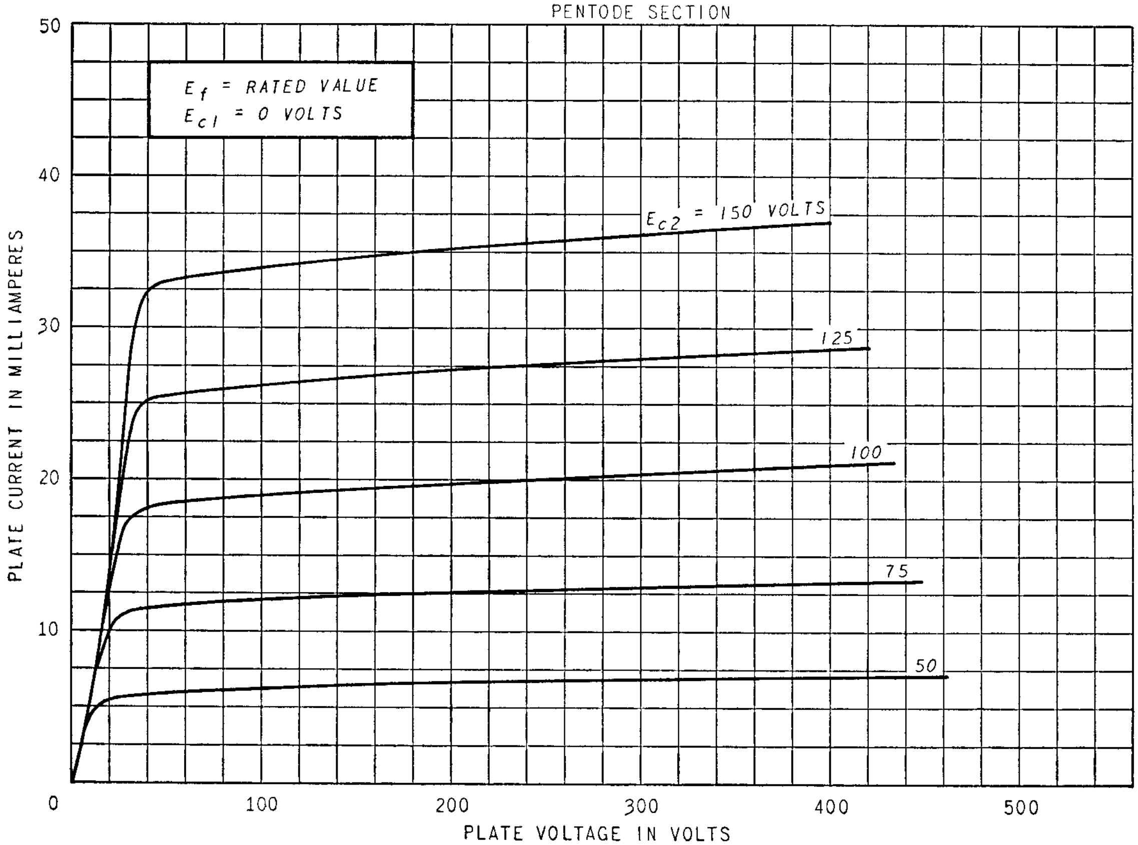
TRIODE SECTION



AVERAGE CHARACTERISTICS

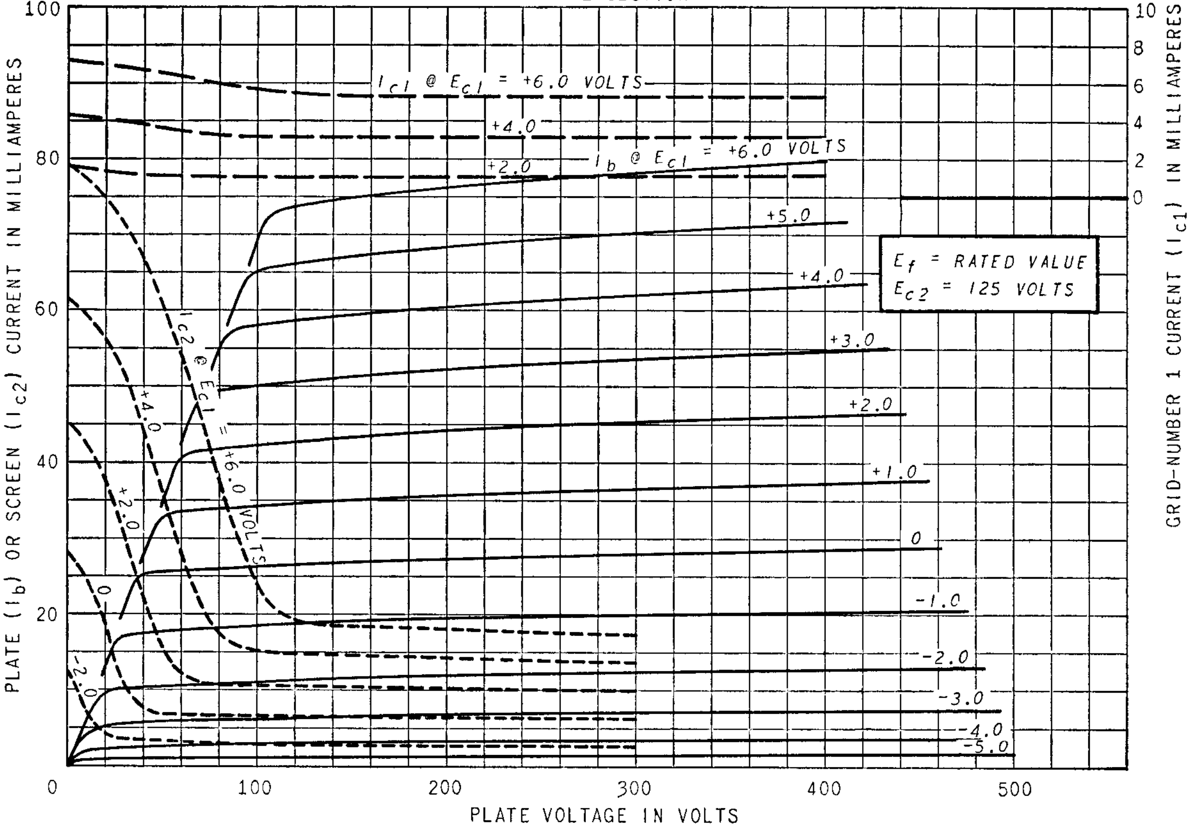


AVERAGE PLATE CHARACTERISTICS



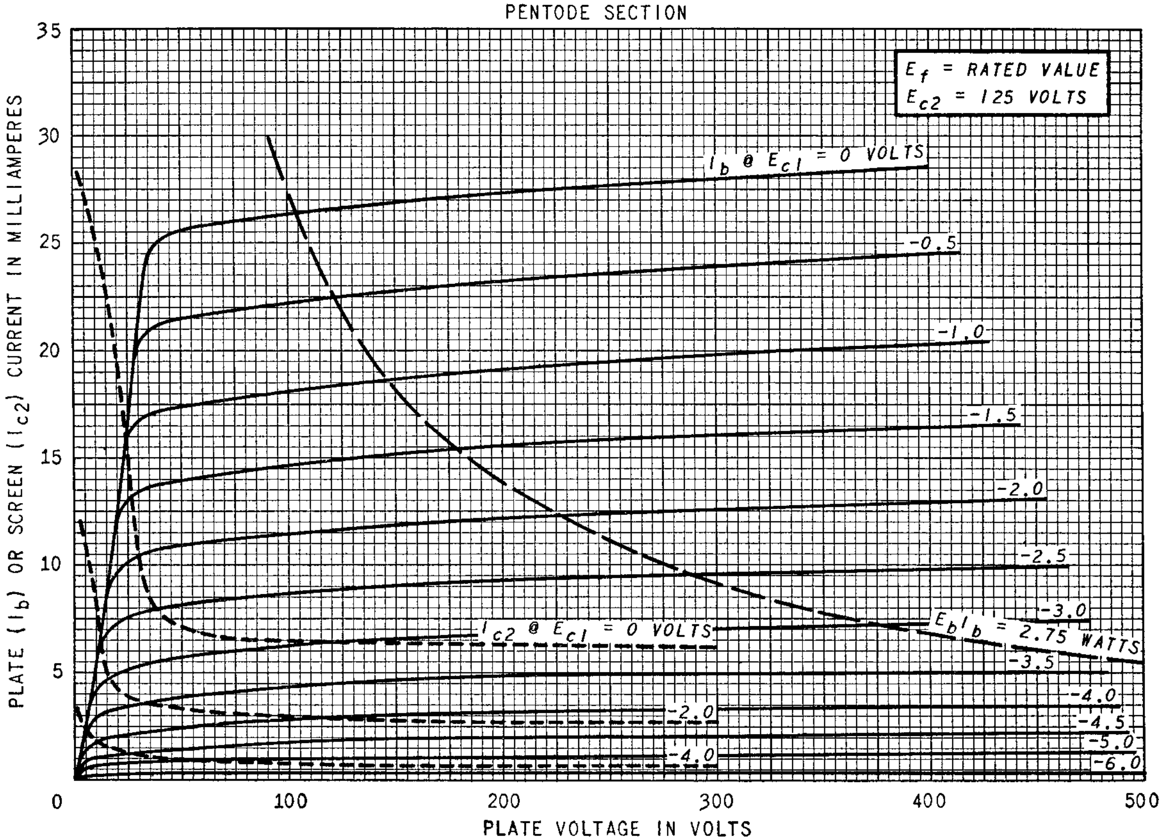
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



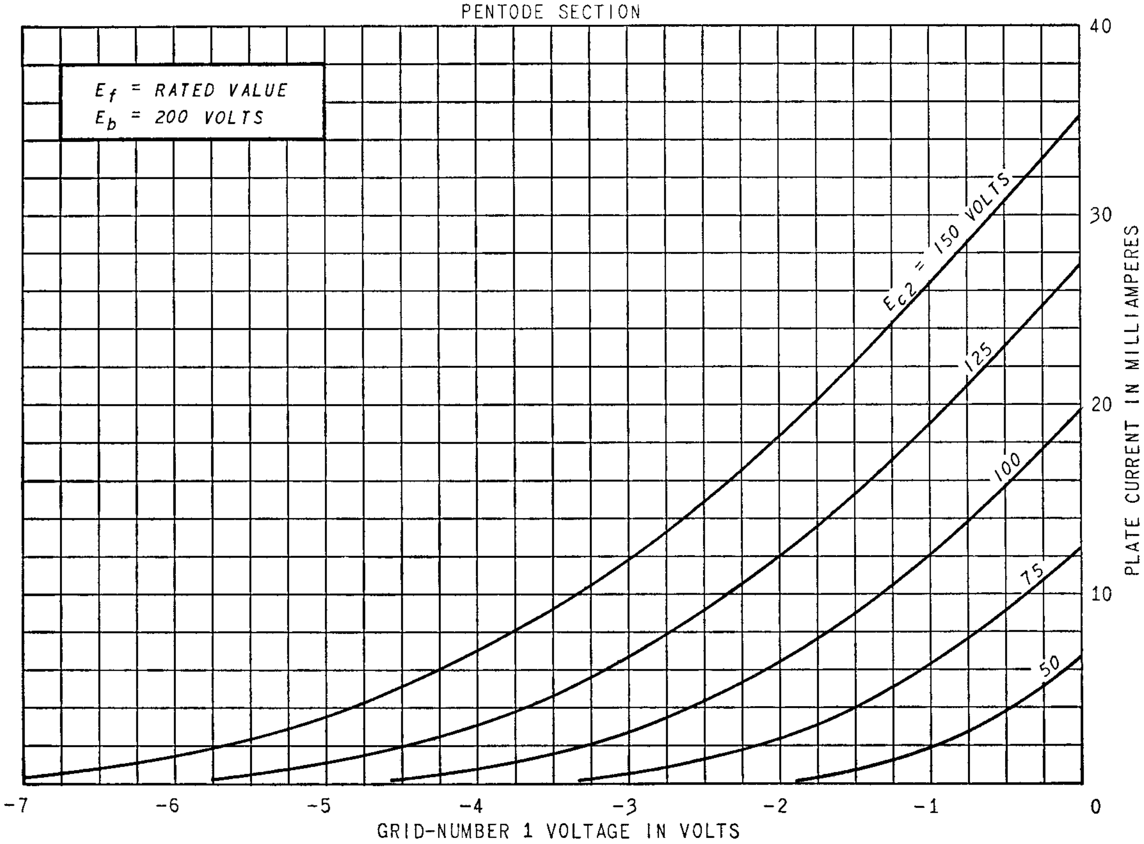
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



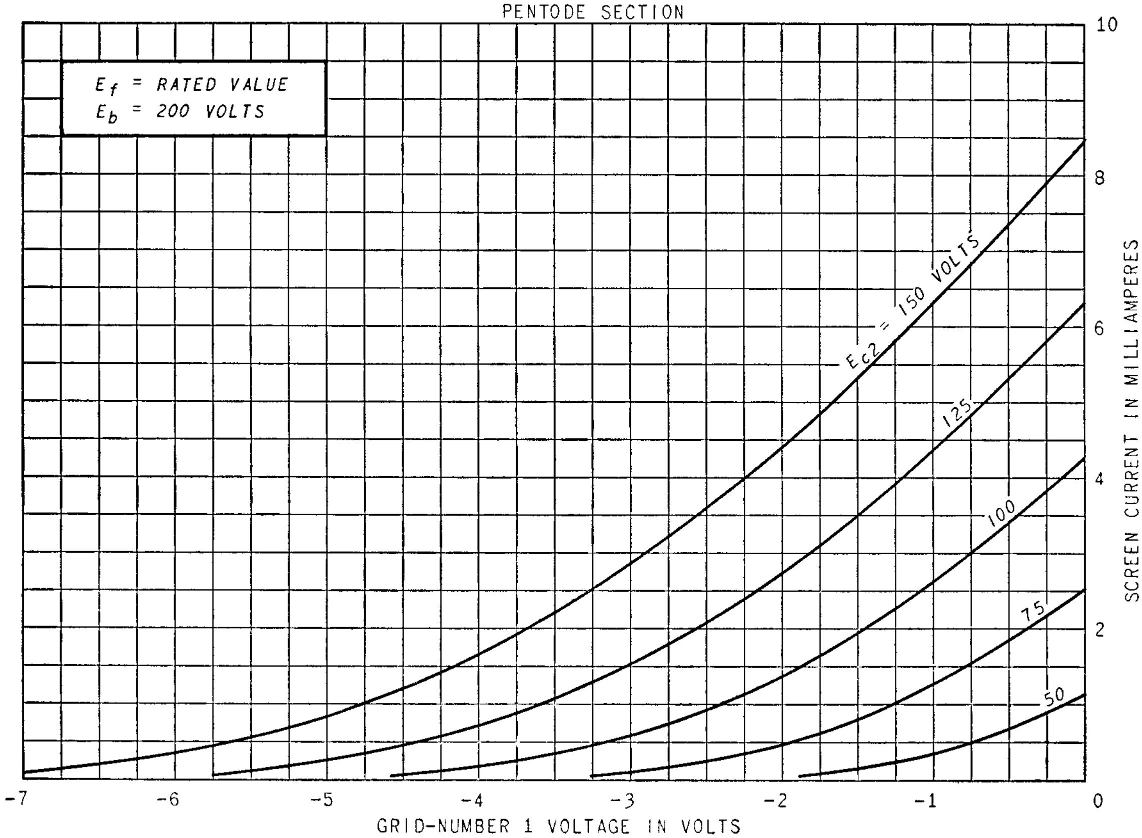
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



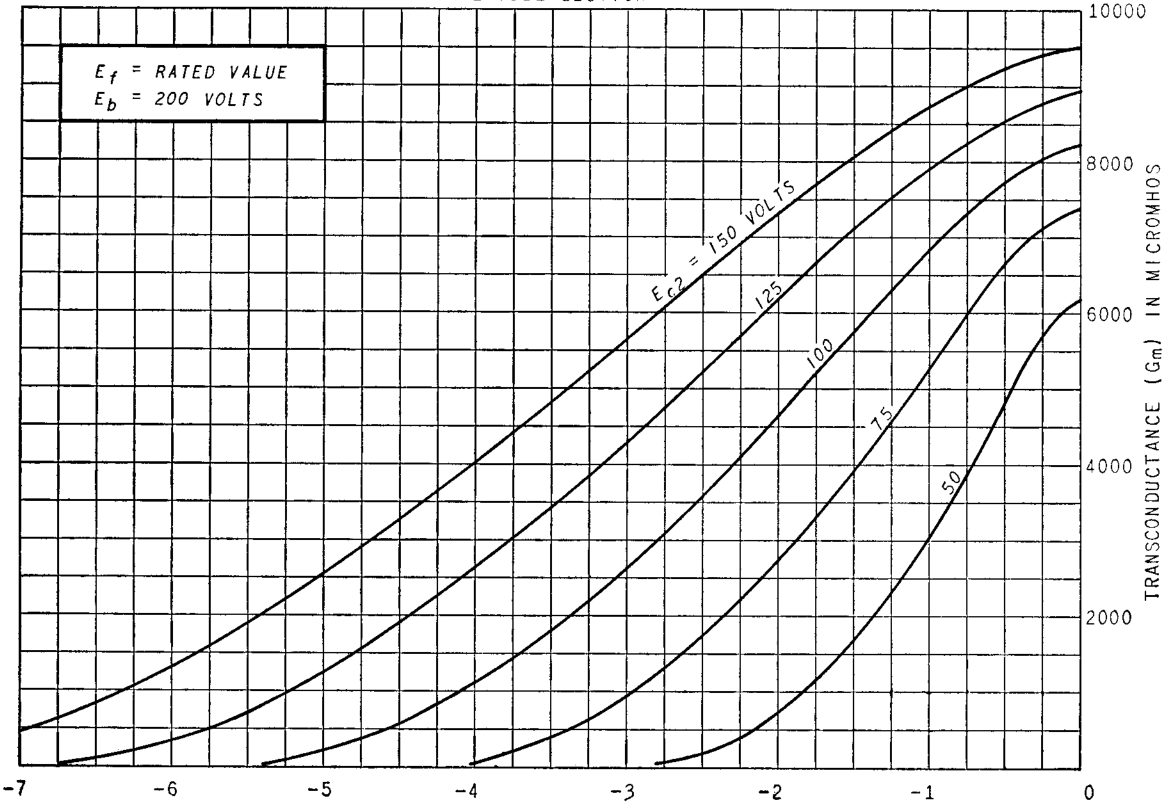
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



SCREEN RATING CHART

PENTODE SECTION

